

**Amendments to the Claims:**

Claims 1-5 (Cancelled).

Claim 6. (Currently Amended) A microscope system for inspection during semiconductor manufacture comprising:

a laser module having a pulsed laser for inspection illumination, said inspection illumination being in the UV range;

a microscope;

a coupling connecting the laser module to the microscope; and

~~a pulsed laser for illumination, said laser being in the UV range; and~~

at least one rotating diffusion disk arranged behind the laser for the homogenization of the inspection illumination.

Claim 7. (Currently Amended) The microscope system according to claim 6, including wherein the at least one rotating diffusion disk includes two diffusion disks rotating in opposite directions arranged directly or indirectly behind each other in an illumination ray path.

Claim 8. (Previously Presented) The microscope system according to claim 6, wherein the diffusion disk is either of a granulated or of a holographically produced design.

Claim 9. (Currently Amended) The microscope system according to claim 6, ~~with a rotation speed of the diffuser disk of at least a magnitude that a rotation by at least one grain size or the resolution limit of a holographically generated structure or by the length of a structure takes place between two laser pulses~~ wherein the rotation speed of the diffusion disk is sufficiently fast to rotate by at least one grain size of the diffusion disk or by the resolution limit of a holographically generated structure between two laser pulses.

Claim 10. (Currently Amended) The microscope system according to claim 6, ~~with~~ wherein an illumination laser wavelength ~~which~~ essentially corresponds to an illumination wavelength during the manufacture of semiconductors.

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Claim 11. (Previously Presented) The microscope system according to claim 10, wherein the illumination wavelength is in the range of 193nm or 248nm or 266nm or 366nm, all with a tolerance of +/-2nm.

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Claim 12. (Cancelled)

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Claim 13. (Currently Amended) In an inspection device for use in semiconductor manufacture, having a laser microscope, an improvement comprising:  
a pulsed laser operable to generate an inspection illumination in the UV range;  
and at least one rotating diffusion disk arranged behind the laser for the homogenization of the inspection illumination.

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Claim 14. (Currently Amended) A microscope system for inspection of masks or processed wafers during semiconductor manufacture comprising:

a laser module having a pulsed laser operable to generate an inspection illumination, said inspection illumination being in the UV range;  
a microscope;  
a coupling connecting the laser module to the microscope; and  
~~a pulsed laser for illumination, said laser being in the UV range;~~  
at least one continuously rotating diffusion disk arranged behind the laser for the homogenization of the inspection illumination;  
~~and wherein two diffusion disks rotate in opposite directions arranged directly or indirectly behind each other in an illumination ray path.~~

Claim 15. (Currently Amended) A microscope system for inspection of masks prior to a micro-lithography process using the masks during semiconductor manufacture comprising:

a laser module having a pulsed laser operable to generate an inspection illumination for a mask, said inspection illumination being in the UV range;  
a microscope;

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and a coupling connecting the laser module to the microscope; and  
~~a pulsed laser for illumination, said laser being in the UV range;~~  
at least one continuously rotating diffusion disk arranged behind the laser for the  
homogenization of the illumination;  
~~wherein the diffusion disk is either of a granulated or of a holographically  
produced design, and;  
with a rotation speed of the diffuser disk of at least a magnitude that a rotation by  
at least one grain size or the resolution limit of a holographically generated structure or by the  
length of a structure takes place between two laser pulses.~~

Claim 16. (New) The microscope system according to claim 6, further comprising a second  
diffusion element arranged near the at least one diffusion disk in the inspection illumination ray  
path.

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